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10/790,451	02/17/2004	Patrick James Noffke	077077-9159-01	9929

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EXAMINER	
PARK, EDWARD	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/790,451	NOFFKE ET AL.	
	Examiner	Art Unit	
	Edward Park	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :6/1/04, 7/12/04, 4/29/05, 1/22/07.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. **Claims 1, 3, 4, 6, 9, 10, 11, 12, 13, 24, 25, 26, 28, 29, 30, 31, 32, 34, 37, 38, 39, 40** are rejected under 35 U.S.C. 102(b) as being anticipated by Sikes et al (US 6,058,201).

Regarding **claim 1**, Sikes teaches an image processing apparatus for use with a printed substrate, the image processing apparatus comprising:

a first processor that receives an acquired image from a printed substrate (Sikes: figures 1, 2);

and a second processor that receives the same acquired image from the printed substrate (Sikes: figures 1, 2); wherein both the first and the second processors are capable of processing the spectral information from the acquired image ("determining reflective density values of each color of ink that is printed on a web"; Sikes: col. 4, lines 21-33; col. 32, lines 18-22).

Regarding **claim 3**, Sikes teaches the first processor includes a single black and white CCD sensor (Sikes: figure 1, numeral 30).

Regarding **claim 4**, Sikes teaches the first processor includes a three CCD color sensor (Sikes: figure 1, numeral 30).

Regarding **claim 6**, Sikes teaches the second processor includes an area-scan CCD sensor (figure 1, numeral 30; figure 2; "acquire matrix images of portions of the web"; Sikes: col. 6, lines 21-36; col. 17, lines 24-36).

Regarding **claim 9**, Sikes teaches the first processor and the second processor are in communication such that information from one of the first or second processors can be used to direct the function of the other of the first or second processors (Sikes: figure 2, numeral 101).

Regarding **claim 10**, Sikes teaches information from the first processor can be used to control the registration of the second processor (Sikes: figure 12; col. 26, lines 63-67; col. 27, lines 1-20).

Regarding **claim 11**, Sikes teaches information from the second processor can be used to calibrate the first processor (Sikes: figure 12; col. 26, lines 63-67; col. 27, lines 1-20).

Regarding **claim 12**, Sikes teaches first and second processors having different dynamic ranges (Sikes: col. 1, lines 42-61; col. 4, lines 56-67; col. 14, lines 49-58; col. 15, lines 35-55).

Regarding **claim 13**, Sikes teaches wherein the second processor (Sikes: figure 1,2) is removable (all processors can be removed, e.g. pins or processing removing apparatus).

Regarding **claim 24**, Sikes teaches a method for monitoring the color of a printed substrate, the method comprising:

acquiring an image from a printed substrate (Sikes: figure 1, numeral 30, 36);

providing the acquired image to a first processor (Sikes: figures 1, 2); and

providing the same acquired image to a second processor (Sikes: figures 1, 2);

wherein both the first processor and the second processor are capable of processing spectral information from the acquired image ("determining reflective density values of each color of ink that is printed on a web"; Sikes: col. 4, lines 21-33; col. 32, lines 18-22).

Regarding **claim 25**, Sikes teaches processing the spatial information ("geometric measurements of print test areas"; Sikes: col. 7, lines 35-62) from the acquired image using the first processor and processing the spectral information ("reflective density of print test areas"; Sikes: col. 7, lines 35-62) from the acquired image using the second processor.

Regarding **claim 26**, Sikes teaches acquiring the image from the printed substrate includes acquiring a plurality of color portions on the printed substrate within the image (figure 1, 2; "acquire matrix images of portions of the web"; Sikes: col. 6, lines 21-36; col. 17, lines 24-36).

Regarding **claim 28**, controlling the registration of the second processor using information from the first processor (Sikes: figure 12; col. 26, lines 63-67; col. 27, lines 1-20).

Regarding **claim 29**, calibrating the first processor using information from the second processor (Sikes: figure 12; col. 26, lines 63-67; col. 27, lines 1-20).

Regarding **claim 30**, Sikes teaches an image processing apparatus for use with a printed substrate, the image processing apparatus comprising:

a first processor that receives at least a first portion of an acquired image from a printed substrate (figure 1, 2; "acquire matrix images of portions of the web"; Sikes: col. 6, lines 21-36; col. 17, lines 24-36); and a second processor that receives at least a second portion of the acquired image from the printed substrate (figure 1, 2; "acquire matrix images of portions of the web"; Sikes: col. 6, lines 21-36; col. 17, lines 24-36); wherein both the first and second processors are capable of processing the spectral information from the first and second portions of the acquired image, respectively ("determining reflective density values of each color of ink that is printed on a web"; Sikes: col. 4, lines 21-33; col. 32, lines 18-22).

Regarding **claim 31**, Sikes teaches the first processor includes a large format sensor (Sikes: figure 1, numeral 30).

Regarding **claim 32**, Sikes teaches the first processor includes a three CCD color sensor (Sikes: figure 1, numeral 30).

Regarding **claim 34**, Sikes teaches the second processor includes an area-scan CCD sensor (figure 1, numeral 30; figure 2; "acquire matrix images of portions of the web"; Sikes: col. 6, lines 21-36; col. 17, lines 24-36).

Regarding **claim 37**, Sikes teaches information from the first processor is used to register the second processor (Sikes: figure 12; col. 26, lines 63-67; col. 27, lines 1-20), and wherein information from the second processor is used to calibrate the first processor (Sikes: figure 12; col. 26, lines 63-67; col. 27, lines 1-20).

Regarding **claim 38**, Sikes teaches a method for monitoring the color of a printed substrate, the method comprising:

acquiring an image from multiple color portions on a printed substrate (figure 1, numeral 30; figure 2; "acquire matrix images of portions of the web"; Sikes: col. 6, lines 21-36; col. 17, lines 24-36);

processing information generated from a first portion of the acquired image using a first processor (Sikes: figures 1, 2);

processing information generated from a second portion of the acquired image using a second processor (Sikes: figures 1, 2);

registering the second processor using information from the first processor (Sikes: figure 12; col. 26, lines 63-67; col. 27, lines 1-20);

and calibrating the first processor using information from the second processor (Sikes: figure 12; col. 26, lines 63-67; col. 27, lines 1-20).

Regarding **claim 39**, Sikes teaches processing information generated from the first portion of the acquired image using the first processor includes processing the spatial ("measure the geometric measurements of print test areas"; Sikes: col. 7, lines 35-62) and spectral information generated from the first portion of the image ("determining reflective density values of each color of ink that is printed on a web"; Sikes: col. 4, lines 21-33; col. 32, lines 18-22).

Regarding **claim 40**, Sikes teaches processing information generated from the second portion of the acquired image using the second processor includes processing the spatial ("measure the geometric measurements of print test areas"; Sikes: col. 7, lines 35-62) and spectral information generated from the second portion of the image ("determining reflective

density values of each color of ink that is printed on a web"; Sikes: col. 4, lines 21-33; col. 32, lines 18-22).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 2, 5, 8, 33** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sikes et al (US 6,058,201) in view of Juang (US 5,999,636).

Regarding **claim 2**, Sikes discloses all elements as mentioned above in claim 1. Sikes further teaches the first processor includes a large format sensor (Sikes: figure 1, numeral 30) and a second processor (Sikes: figures 1, 2). Sikes does not teach a small format sensor.

Juang teaches a small format sensor ("line scan camera"; Juang: col. 4, lines 38-55).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Sikes reference to utilize a small format sensor as suggested by Juang, to allow for further detailed image acquisition purposes.

Regarding **claim 5**, Sikes discloses all elements as mentioned above in claim 1. Sikes does not teach a line-scan CCD sensor.

Juang teaches a line-scan CCD sensor ("line scan camera"; Juang: col. 4, lines 38-55).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Sikes reference to utilize a line-scan CCD sensor as suggested by Juang, to allow for further detailed image acquisition purposes.

Regarding **claim 8**, Sikes discloses all elements as mentioned above in claim 1. Sikes further teaches wherein the first processor includes a sensor having a low spectral resolution and a second processor. Sikes does not teach a sensor having a high spectral resolution.

Juang teaches a sensor having a high spectral resolution ("line scan camera"; Juang: col. 4, lines 38-55).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Sikes reference to utilize a line-scan CCD sensor as suggested by Juang, to allow for further detailed image acquisition purposes.

Regarding **claim 33**, Sikes discloses all elements as mentioned above in claim 30. Sikes does not teach a line-scan CCD sensor.

Juang teaches a line-scan CCD sensor ("line scan camera"; Juang: col. 4, lines 38-55).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Sikes reference to utilize a line-scan CCD sensor as suggested by Juang, to allow for further detailed image acquisition purposes.

5. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over Sikes et al (US 6,058,201) in view of Hunter (US 6,630,995 B1).

Regarding **claim 7**, Sikes discloses all elements as mentioned above in claim 1. Sikes further teaches the second processor includes capturing and directing the acquired image to the

second processor (Sikes: figure 2, numeral 101). Sikes does not teach a utilizing a fiber optic bundle.

Hunter teaches a fiber optic bundle ("fiber optic cable"; Hunter: col. 18, lines 39-51)

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Sikes reference to utilize a fiber optic bundle as suggested by Hunter, to allow for "large amounts of the broadband light source" (Hunter: col. 18, lines 39-51) and also to accommodate large transmission rates from one processor to another.

6. **Claims 14, 15, 16, 17, 18, 19, 21, 22, 23** are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Sikes et al (US 6,058,201) with Juang (US 5,999,636), and further in view of Hunter (US 6,630,995 B1).

Regarding **claims 14, 18, and 19**, Sikes teaches an image processing apparatus for use with a printed substrate, the image processing apparatus comprising:

a first processor including a large format sensor (Sikes: figure 1, numeral 30) to process information from an image acquired from a printed substrate;

a second processor to process information from the same acquired image (Sikes: figures 1, 2); and

a bundle positioned to receive the acquired image from the printed substrate and operable to direct the acquired image to the second processor (Sikes: figure 2, numeral 101);

wherein both the first processor and the second processor are operable to process the spectral information from the acquired image ("determining reflective density values of each color of ink that is printed on a web"; Sikes: col. 4, lines 21-33; col. 32, lines 18-22).

Sikes does not teach a small format sensor, line-scan CCD sensor, and a high spectral resolution processor, and fiber optic bundle.

Juang teaches a small format sensor, line-scan CCD sensor, and a high spectral resolution processor ("line scan camera"; Juang: col. 4, lines 38-55).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Sikes reference to utilize a small format sensor as suggested by Juang, to allow for further detailed image acquisition purposes.

Hunter teaches a fiber optic bundle ("fiber optic cable"; Hunter: col. 18, lines 39-51).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Sikes with Juang combination as mentioned above to utilize a fiber optic bundle as suggested by Hunter, to allow for "large amounts of the broadband light source" (Hunter: col. 18, lines 39-51) and also to accommodate large transmission rates from one processor to another.

Regarding **claim 15**, Sikes teaches a first processor is a spatial imaging device ("measure the geometric measurements of print test areas"; Sikes: col. 7, lines 35-62).

Regarding **claim 16**, Sikes teaches the spatial imaging device ("measure the geometric measurements of print test areas"; Sikes: col. 7, lines 35-62) includes a single CCD, black and white sensor (Sikes: figure 1, numeral 30).

Regarding **claim 17**, Sikes teaches a spatial imaging device ("measure the geometric measurements of print test areas"; Sikes: col. 7, lines 35-62) is also adapted to process the spectral information from the acquired image ("determining reflective density values of each color of ink that is printed on a web"; Sikes: col. 4, lines 21-33; col. 32, lines 18-22).

Regarding **claim 21**, Sikes teaches information from the first processor can be used to control the registration of the second processor (Sikes: figure 12; col. 26, lines 63-67; col. 27, lines 1-20).

Regarding **claim 22**, Sikes teaches information from the second processor can be used to calibrate the first processor (Sikes: figure 12; col. 26, lines 63-67; col. 27, lines 1-20).

Regarding **claim 23**, Sikes teaches wherein the second processor (Sikes: figure 1,2) is removable (all processors can be removed, e.g. pins or processing removing apparatus).

7. **Claim 20** is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Sikes et al (US 6,058,201), Juang (US 5,999,636), with Hunter (US 6,630,995 B1), and further in view of Seymour (US 5,724,259).

Regarding **claim 20**, the Sikes, Juang, with Hunter combination discloses all elements as mentioned above in claim 14. Sikes, Juang, with Hunter combination does not teach a third processor that analyzes data from the first and second processors, and wherein the third processor digitizes the data to reduce the effects of scattered light.

Seymour teaches a third processor that analyzes data from the first and second processors, and wherein the third processor digitizes the data to reduce the effects of scattered light (figure 6, 8; "scattered light correction"; Seymour: col. 9, lines 34-37).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Sikes, Juang, with Hunter combination as mentioned above to utilize a third processor to reduce the effects of scattered light as suggested by Seymour, to correct the inaccurate "optical density measurements of color [caused by] degrading effects of glare and scattered light" (Seymour: col. 1, lines 51-60).

8. **Claims 27, 35, 36** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sikes et al (US 6,058,201) in view of Seymour (US 5,724,259).

Regarding **claim 27**, Sikes discloses all elements as mentioned above in claim 24. Sikes further teaches processing the spatial information generates a first signal ("geometric measurements of print test areas"; Sikes: col. 7, lines 35-62) and processing the spectral information generates a second signal ("determining reflective density values of each color of ink that is printed on a web"; Sikes: col. 4, lines 21-33; col. 32, lines 18-22). Sikes does not teach processing the first and second signals to correct for the effects of scattered light.

Seymour teaches processing the first and second signals to correct for the effects of scattered light (figure 6, 8; "scattered light correction"; Seymour: col. 9, lines 34-37).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Sikes, Juang, with Hunter combination as mentioned above to utilize a third processor to reduce the effects of scattered light as suggested by Seymour, to correct the inaccurate "optical density measurements of color [caused by] degrading effects of glare and scattered light" (Seymour: col. 1, lines 51-60).

Regarding **claim 35**, Sikes discloses all elements as mentioned above in claim 30. Sikes does not teach a first lens; a light blocker having a slit therein; a second lens; and a third lens.

Seymour teaches a first lens; a light blocker having a slit therein; a second lens; and a third lens (Seymour: figure 4a).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Sikes reference to utilize the configuration as suggested by Seymour, to

allow efficient, accurate acquisition of the image by utilizing the specific parameters/components for the imaging processing apparatus.

Regarding **claim 36**, Sikes discloses all elements as mentioned above in claim 30. Sikes does not teach a diffraction grating or a prism.

Seymour teaches a diffraction grating or a prism (figure 2, numeral 46; "dichroic prism"; Seymour: col. 5, lines 26-34).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Sikes reference to a prism as suggested by Seymour, to "separate reflected light from the printed image on the web 12 into a red channel 64, a green channel 66, and a blue channel 68" (Seymour: col. 5, lines 26-34).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward Park whose telephone number is (571) 270-1576. The examiner can normally be reached on M-F 10:30 - 20:00, (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Werner can be reached on (571) 272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Edward Park
Examiner
Art Unit 2624

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/Brian P. Werner/
Supervisory Patent Examiner (SPE), Art Unit 2624